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| 09/892,788 | 06/28/2001 | Kenichi Nishikawa | 040894-5685 | 9631 |
| 9629 | 7590 | 12/11/2003 | EXAMINER | |
| MORGAN LEWIS & BOCKIUS LLP | | | ROY, SIKHA | |
| 1111 PENNSYLVANIA AVENUE NW | | | ART UNIT | |
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2879

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/892,788

Applicant(s)

NISHIKAWA, KENICHI

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-16 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0803.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The Amendment, filed on August 25, 2003 has been entered and is acknowledged by the Examiner.

New claim 17 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. In the present instance, claims 1 and 17 recite the broad limitation "tint of the marking layer as seen through the glaze layer 4 or less in brightness as specified by 1993 JIS: Z8721 as well as 2 or less in chroma as specified

by 1993 JIS: Z8721", and the claim also recites "3 or less in brightness as specified by 1993 JIS: Z8721 as well as 3 or less in chroma as specified by 1993 JIS: Z8721" which is the narrower statement of the range/limitation of brightness and thus renders the claims 1 and 17 indefinite.

Claims 2-11 are rejected because of their dependency status from claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0959542 A1 to Sugimoto et al. in view of U. S Patent 6,114,054 to Klein et al.

Sugimoto et al. disclose (page 11 line 29, Fig.3) a spark plug comprising of an insulator with a glaze layer 2d formed on the surface. Sugimoto et al. further disclose (page 2 line 42,43, page 4 lines 30,31) that the amount of Pb contained in the glaze is remarkably reduced to 1% by weight or less as reduced to PbO.

Claim 1 differs from Sugimoto et al. in that Sugimoto et al. do not exemplify a marking layer formed on the insulator underneath the glaze layer so that the marking layer can be seen through the glaze layer.

Klein et al. in relevant art of coloring ceramic surfaces disclose (column 1 lines 66,67, column 2 lines 1-5) a marking layer (pigment layer) applied to the ceramic body

and subsequently coated with a glaze. It is to be noted that this marking layer can be used for marking or applying color pattern for decoration of the ceramic object.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a marking layer on the ceramic insulator surface subsequently coated with glaze layer as suggested by Klein et al. of the spark plug of Sugimoto et al. for marking or applying color pattern for decoration purpose.

Regarding claim 1, Sugimoto and Klein disclose the claimed invention except for the limitation of the tint of the marking layer seen through the glaze layer having particular value in brightness and chroma as specified by 1993 JIS: Z8721. It is well known in the art (as evidenced by U.S. Patent 6,524,703 to Court (column 5 lines 20-28)) that brightness is related to gloss and refractive index and hence the material of the glazing material. Furthermore pigments or dyes impart hue and chroma to an article (as evidenced in definition of colorant in U.S. Patent 6,110,566 to White et al.). Hence it would have been obvious to one of ordinary skill in the art at the time of invention to specify the brightness and chroma of marking layer seen through the glaze layer which inherently change with the composition of the glaze layer (affecting brightness) and the marking layer (pigments affecting chroma).

It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to specify the tint of the marking layer seen through the glaze layer, 3 or less in brightness as well as 3 or less in chroma as specified by 1993 JIS: Z 8721 or 4 or less in brightness as well as 2 or less in chroma

as specified by 1993 JIS: Z 8721, since discovering an optimum value of a result variable is considered within the skills of the art.

Regarding claim 2 Sugimoto et al. disclose (page 7 line 43) the glaze layer further comprises Zn component.

Regarding claim 3 Sugimoto et al. disclose (page 15, Table 1) Zn present in the glaze layer in an amount of 21 mol.% as reduced to ZnO. Sugimoto et al. disclose (page 7 line 43) Zn present in the glaze layer in an amount of 10-25% by weight (12-30 mol%) as reduced to ZnO.

Regarding claims 4,5 and 6 Klein et al. disclose (column 1 lines 16-19) the pigments used in the marking layer comprise colored oxides of iron, chromium, manganese.

Claim 17 essentially recites the limitations of claim 1 and 5 and hence is rejected for similar reason (see rejection of claims 1 and 5).

Allowable Subject Matter

Claims 12-16 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claim 12, the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 12, and specifically the limitation of marking layer comprising 30 to 60 mass% of an Fe

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component in terms of Fe_2O_3 and 10 to 40 mass % of a Cr component in terms of Cr_2O_3 .

Claims 13-16 are allowable for the reasons given in claim 12 because of their dependency status from claim 12.

Claims 7-11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 7 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 7, and specifically the limitation of the marking layer comprising 30 to 60 mass% of an Fe component in terms of Fe_2O_3 and 10 to 40 mass % of a Cr component in terms of Cr_2O_3 .

Claim 8 would be allowable being dependent on the claim 7.

Regarding claim 9 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 9, and specifically the limitation of the marking layer comprising 10 to 40 mass% of a Co component in terms of CoO .

Regarding claim 10 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 10, and

specifically the limitation of the marking layer comprising 0.5 to 15 mass% of a Ni component in terms of Ni_2O_3 .

Regarding claim 11 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 11, and specifically the limitation of the marking layer comprising 0.5 to 15 mass% in total of at least one of an Al component and a Ba component, the Al component being in terms of Al_2O_3 and the Ba component in terms of BaO.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the rejection of claim 1 the Examiner respectfully submits that brightness and chroma do indeed depend on the material of the glaze layer and the pigments of the marking layer respectively. Sugimoto in view of Klein discloses the glaze layer comprising Pb with less than 1% by weight as reduced to PbO and Zn present in an amount of 10-25 % by weight as reduced to ZnO and marking layer containing pigments comprised of colored oxides of iron, chromium and manganese. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify the tint of the marking layer seen through the glaze layer, 3 or less in brightness as well as 3 or less in chroma as specified by 1993 JIS: Z 8721 or 4 or less in brightness as well as 2 or less in chroma as specified by 1993 JIS: Z

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8721, since discovering an optimum value of a result variable is considered within the skills of the art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879


VIP PATEL
PRIMARY EXAMINER